

ABSTRACT

A rechargeable cooling device includes: a first reservoir configured to contain a liquid; a second reservoir configured to contain a vapor of the liquid; a heat exchanger connected to the first or second reservoir; and a reusable valve, where the cooling device is configured so that: (a) when the first reservoir contains the liquid at a first pressure and the second reservoir contains the vapor at a lower pressure, the heat exchanger may be made to absorb heat at least in part by opening the reusable valve and allowing the liquid to vaporize; and (b) when pressures in the first and second reservoirs are approximately equal, and after the heat exchanger has been made to absorb heat, the cooling device may be recharged for a subsequent use at least in part by cooling the cooling device.